

Auto Capsule



COWON AQ2
User Guide ver. 1.0

+ COPYRIGHT NOTICE

General

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- + This manual is based on the specifications of the product available at the point of publishing it. Note that the sample sentences, charts, pictures given as an example, detailed functions of a product, specifications of H/W and S/W recorded in this manual are subject to change without notice.

Precautions

This device is for recording the driving image of vehicles. Recording may fail depending on the given situation. The videos recorded with this product can only be used as a reference to examining the driving image.

- + This manual is based on the product available at the point of publishing it. It thus may contain errors or omissions in its technical editing.
- + Always back up any important video files.
- + COWON SYSTEMS, Inc. shall not be held accountable for any data loss, poor recording or recording error.

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+ Safety Precautions

This section regards precautions to prevent users from compromising safety or experiencing property damage. Please read the followings carefully before use. (Company has nothing whatever to do with any accident caused by a user who failed to conform to warning and precautions.)

1. Power Supply

- + In the event a product is damaged or disconnected from power due to a critical and impactful accident, the product may not work and fail to record the accident.
- + Do not disassemble or alter the product at your discretion. It may cause electric shock, product damage or loss of recorded data.
- + Avoid inserting metals or flammables into the MicroSD card slot. It may cause a fire or electric shock.
- + If liquid spills onto the product, disconnect the power immediately and contact the customer center.
- + Do not use voltage other than the rated voltage specified by the product. It may cause an explosion, fire or mechanical failure.
- + Always use the genuine products and parts from COWON SYSTEMS, Inc. COWON SYSTEMS, Inc. shall not be held accountable whatsoever for failures or accidents caused by using the product and parts from other sources.
- + If you don't intend to use the product for a long while, unplug the power cable of the product. Otherwise, it may cause electric discharge of a car battery or fire. A user shall be held accountable for the product damage or car breakdown.
- + Do not use wet hands when plugging/unplugging the cigar jack cable. It may cause an electric shock.
- + Plug in the power cord completely with no looseness. Otherwise, it may cause a fire.
- + Do not use the damaged cigar jack cable. It may cause a fire or an electric shock.

+ Safety Precautions

2. Memory Card and Data Management

- + The memory card is an expendable item which needs to be periodically examined and changed to safely write data. It is recommended to format the memory card more than once a week.
- + Memory card is an expendable item which needs to be periodically examined and changed. Use a COWON-authorized memory card.
- + Before removing the memory card from the AutoCapsule, press the button for more than three seconds. Removing the memory card without doing this, it may cause recording errors or product malfunction.
- + If storage space on the memory card is insufficient, previously-recorded files can be deleted in a pre-set order. You can also transfer important recorded files can be transferred for safe-keeping on a separate storage device.

3. Installation and Operation

- + Changing the installation location of the product may result in a change in the camera angle. Adjust the camera angle after installing the product and test the recorded images. Normal recording cannot be guaranteed if the product is wrongly installed.
- + Recording does not start when AutoCapsule is booting. Please drive safely after booting is complete.
- + This product is a device that uses a camera to record video as you drive, therefore, the quality of the recorded videos may deteriorate when taken at the point of entering/exiting a tunnel, when the shadow contrast and counter light to the subject are severe in broad daylight, or when there is no light.
- + Install the product in an area that doesn't disrupt a driver's visibility. Otherwise, it may cause an accident.
- + Do not spray water or wax directly onto the product when cleaning the inside of a car. It may cause mechanical failure or electric shock.

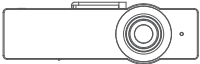



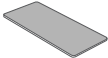


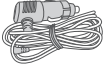
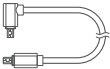

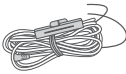
+ Safety Precautions

4. Settings and Others

- + Refrain from operating the product while driving. It may cause a car accident.
- + Avoid excessive car window tinting. It deteriorates the recording quality. The white balance of the video may vary depending on the degree of tinting.
- + Always keep the front window clean and free from dust before recording to guarantee the most optimal recording quality.
- + Foreign matters (e.g. fingerprints) on the lens of the black box may adversely affect the recorded videos. Always keep the lens clean and free from dusts.
- + Use caution not to apply too much strength to the lens and the exterior of the black box, or a mechanical failure may ensue.
- + Do not use the product in a place where there is flammable or explosive gas. Otherwise, ignition or explosion may ensue.
- + Keep the product away from the reach of babies, children, or pets.
- + Avoid high temperatures such as inside the closed car under hot weather or a place with direct sunlight. It may adversely affect the exterior or internal parts of the product, causing a fire.
- + If you use the product for a long time, it heats up inside. So use caution not to get burned by touching it. Avoid touching the metal area when removing the microSD card after using the product for long hours.
- + Do not cover the black box with a cloth or other type of cover. It may contain the heat inside the product, resulting in an exterior deformation or a fire.
- + Do not wipe the product with chemical substances or detergent.
- + In accordance with the Personal Information Protection Act and other relevant regulations, users are held liable for data stored using the product's video/audio recording features. You are advised to take due precaution in storing recorded data.

Before You Start

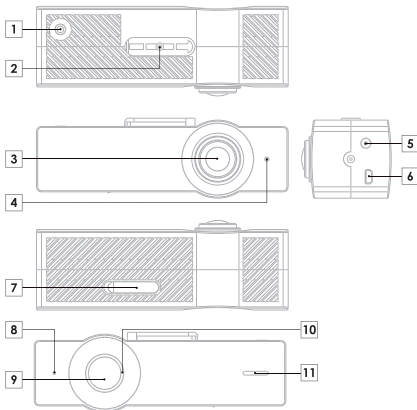
+ Package Components (1-Channel)

			
AutoCapsule AQ2		Manual & PC viewer CD	Quick Guide
			
Front Product Holder ¹⁾	Double-coated tape	Memory Card(microSD) & Card Adapter	Cable Holder Clip(3EA)
			
Cigar Jack Cable	Rear view camera connection cable (Optional) ¹⁾	External GPS Receiver (Optional)	Uninterruptible Power Cable (Optional)

¹⁾ The 2-channel package includes two 1-channel install packages, a camera connection cable, rear mount holder, and double-coated tape.

- Blackboxes can be installed front and rear, 2 units can be linked and used as a 2 channel system. (Sold separately)
- Note that the included items may vary according to the product specifications and may look different from the images provided in the manual.
- Always use the genuine cables from COWON SYSTEMS, Inc.

+ Names of Parts and Functions



No.	Names	Functions
1	GPS Terminal	Connects with external GPS. 1)
2	Holder Connector	Connects with the product holder.
3	Camera Lens	1-Channel : Records the front direction of a vehicle. 2-Channel : Records the front or rear direction of a vehicle.
4	Security LED	The LED indicates the AQ2's recording status.
5	Power Terminal 2)	Cigar jack cable / Uninterrupted power cable terminal
6	Rear View Camera Terminal 3)	Connects with rear view camera.
7	Protective Lid	Protects memory card inside the memory card slot.
8	Microphone	Record voice using a built-in microphone.
9	Buttons 4)	Press once - Turns on/off sound recording (Default setting), or used for manual recording when an event occurs Press twice - Wi-Fi On/Off Press and hold for 3 seconds - Allows safe removal/formatting of memory card
10	LED Status Indicator	Displays the operational status of the device.
11	Speaker	Plays voice guides and sound effects.

1) For a 2-channel installation, connect an external GPS to the rear camera's GPS port.

2) For a 2-channel installation, be sure to connect the power cable to the front camera only.

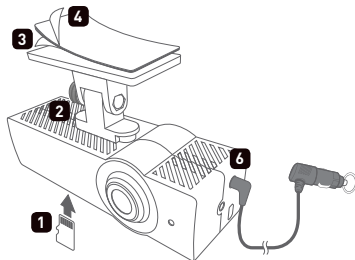
3) This terminal is designed to fit AQ2 rear view camera only; it is not compatible with other devices.

4) When pressing the button, the front and rear view cameras are synchronized and perform the same task. (Safe Removal/Formatting is performed separately)

Before You Start

+ Installation

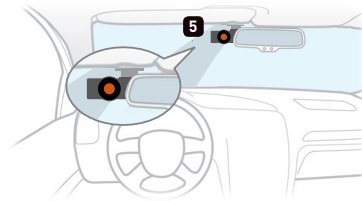
Example: 1-channel front camera installation. Install the rear camera in the same manner for a 2-channel installation. ¹⁾



1. Insert the memory card into the device. ²⁾
2. Place the AQ2 in the device holder.
3. Remove the release paper from one side of the double-coated tape.

¹⁾ The 2-channel package includes two 1-channel install packages, a camera connection cable, rear mount holder, and double-coated tape.

²⁾ If you forcibly insert the card in a wrong direction, it is likely to cause damage or failure. Note that you may need to receive paid repair service to fix this.



4. Attach the side that removes release paper onto the holder and remove the release paper on the other side.

5. Choose the location where you want to attach the device to the vehicle. Wipe any foreign matter or moisture completely from the location before installing the device. ^{3) 4)}

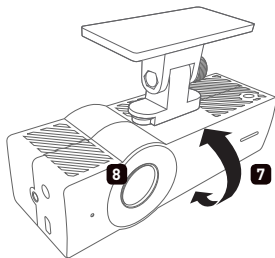
6. Connect cigar jack cable.

³⁾ A space behind the rearview mirror is recommended for installation.

⁴⁾ Select a location carefully as repositioning the device after removing may weaken adhesiveness significantly. Double-check the chosen location before fixing the device.

Before You Start

+ Installation



7. Adjust the direction of the camera lens. 5) 6) 7)

8. A purple LED rotates when power is turned on. The LED turns red when recording starts.

TIP Use a coin to fasten the bolt on the hold to fix the product in place.

- 5) Direction can be easily adjusted by using Live View in the Smart Manager. It can also be adjusted while checking recorded video footage with the PC Manager.
- 6) Adjust the camera lens so that about 10-20% of your vehicle's hood appears on the recording screen.
- 7) Adjust the rear view camera lens so that about 20-30% of the top of the recording screen shows the sky.



10 ~ 20%

Recommended Angle for Front View Camera



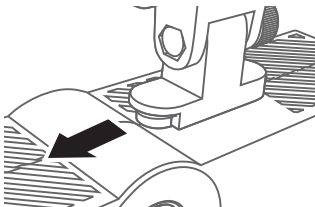
20 ~ 30%

Recommended Angle for Rear View Camera

Before You Start

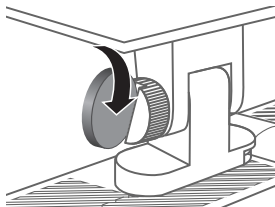
+ Attaching to/Detaching from A Product Holder

Attach/detach the product as shown below:



Push the product to attach to/detach from the holder.

OR



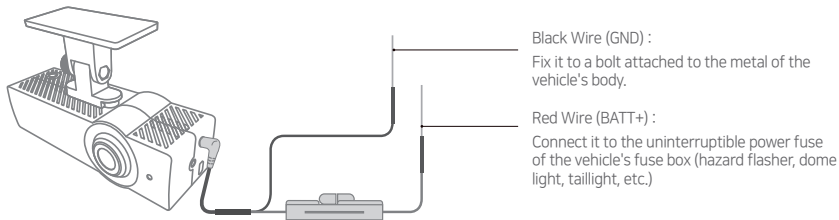
Use a coin to fasten/unfasten the bolt on the holder to attach/detach the product.

+ Uninterruptible Power Connection

Connect the uninterruptible power cable to the front camera. 1) 2)

When connected with uninterruptible power, recording continues even when the vehicle is parked and the engine is turned off.

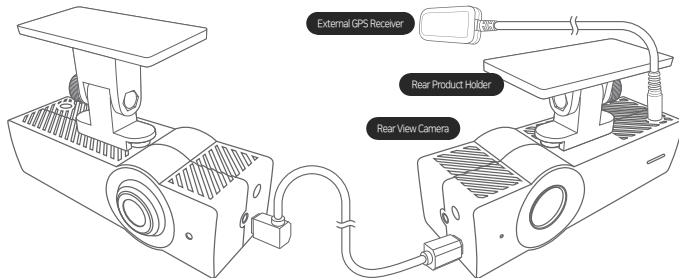
- Make sure you fully understand how to set up uninterruptible power connection before connecting the device.
- Each wire must be fixed to a specific dedicated location, otherwise inverse voltage can occur, seriously damaging the device.
- Uninterruptible power cable can be installed using wires from the fuse box inside the car.
- In a high-temperature environment, this product will automatically stop recording to protect product functions.
- When recording is automatically stopped, the Purple LED will flicker repeatedly, and if the temperature decreases, operation will automatically resume.



- 1) For a 2-channel installation, be sure to connect the power cable to the front camera only. Connect the front and rear cameras with the camera connection cable provided.
- 2) Uninterruptible Power Cable (Optional)

+ Connecting Rear View Camera and External GPS Module (2-channel)

- Connect the front and rear cameras with the camera connection cable provided ¹⁾
- When connected the rear view camera, LED turns on, indicating that the camera is ready for simultaneous 2-channel recording of both the front and rear areas.
- Connecting an external GPS module allows PC Manager to show recorded places on the map. ²⁾



¹⁾ This terminal is designed to fit AQ2 rear view camera only; it is not compatible with other devices.

²⁾ For a 1-channel installation, connect an external GPS to the front camera's GPS port. For a 2-channel installation, connect an external GPS to the rear camera's GPS port. (External GPS may be purchased separately.)

+ Start Recording

When power is turned on, the LED status indicator will rotate in purple while the voice message announces the start-up of AutoCapsule. The LED indicator turns red while the voice message announces the start of driving mode recording; recording begins.

+ Driving Mode Recording

When power is connected, the indicator LED turns red, the voice message announces driving mode recording, and recording begins. Driving mode recording files are stored as normal files or event files.

+ Parking Mode Recording ¹⁾

When the car engine is turned off and battery voltage drops to parking mode, the device's driving mode recording stops and switches into a standby mode. It automatically starts recording for a certain period of time only when external impact or motion is detected. ²⁾

+ End Recording

When the car engine is turned off or the power cable is unplugged during the operation, the last recording file is stored using the backup supercapacitor and then the device is powered off. ³⁾

¹⁾ Uninterruptible power connection is needed for parking mode recording.

²⁾ When "non-stop recording" mode is selected in the Settings menu, the product can stay in recording mode even when the vehicle is parked.

³⁾ The last recorded file may not be stored if backup supercapacitor is low.

+ Occurrence of Event

When one of the events described below takes place, it records for a total of 1 minute (including approximately 5 seconds before the occurrence of the event) and stores it as an event (EVT) file.

1. When an impact is detected during driving/parking mode recording.
2. When the button is pressed once briefly during driving/parking mode recording. ¹⁾

+ Motion Detection

When a motion is detected during parking mode recording, it records a total of 1 minute (including approximately 5 seconds before the moment of detection) and stores it as a motion (MOT) file. ²⁾

- 1) Go to Settings → Sound → Sound Recording and deselect Sound Recording by Button to activate Event Setting.
- 2) If motion files are created continuously during parking mode, as indicated by the LED, go to Settings → Device → LED On During Parking Recording, OFF

+ LED Status Indicator

Category	Operating mode	Status	Color	Blinking cycle
Recording	Wi-Fi Off	Driving mode recording / Parking mode non-stop recording	Red	Stays solid
		Standby during parking mode driving	Red	Slow blinking
		Event (Impact, Button) / Motion	Red	Fast blinking
		Wi-Fi is being turned off	Red	Rotates
	Wi-Fi On	Driving mode recording / Parking mode non-stop recording	Blue	Stays solid
		Standby during parking mode driving	Blue	Slow blinking
		Event (Impact, Button) / Motion	Blue	Fast blinking
		Wi-Fi is being turned	Blue	Rotates
System		Bootting; Format	Purple	Rotates
		Protection from high temperature; No memory car	Purple	Slow blinking
		Error; Alert (Safe removal, etc.)	Purple	Fast blinking
		Firmware upgrade	Alternates between red and blue	Fast blinking

* The front security LED flashes white when recording, visible from the outside and clearly indicating that the onboard camera is in operation.

+ Safe Removal and Formatting of Memory Card

If the memory card is removed without due caution during recording, the file being recorded will not be saved and it may cause critical damage to the memory card. Always make sure the card is removed safely.

* It is recommended that the memory card is formatted on a regular basis for stable use of the device.



1. When the button located on the side of the device is pressed and held for more than three seconds during recording, the indicator LED will blink rapidly in purple alongside a sound effect and the voice message "Memory card is removed safely." ¹⁾
 2. When the protective lid is opened and the memory card is removed, the indicator LED will turn purple alongside the voice message "There is no memory card."
 3. When the memory card is re-inserted again into the device, the LED status indicator will rotate in purple while the voice message "Press the button to start formatting the memory card."
 4. When the side button is pressed and held for more than three seconds, it will start the formatting process alongside the voice message "Formatting starts."
 5. When completed, the format process ends alongside the voice message "Format is completed."
- ¹⁾ Press and hold the button for more than 3 seconds again to format the memory card while it is not removed.

- * You can also format the memory card through the PC Manager and Smart Manager.
- * To format on PC, choose "FAT32" for the File System (F) and "32KB" for the Cluster Size (A).

+ Button Operation

See the table below for button operations while using the AutoCapsule.

Press the button briefly	Press the button twice	Press and hold the button
Turns on/off sound recording. ¹⁾	Turns Wi-Fi On/Off.	Initiates process for safe removal of memory card. Initiates format process when memory card is inserted.

¹⁾ Go to Settings → Sound → Sound Recording and deselect Sound Recording by Button to record manually as an event file.

+ More Functions

- Protection from high temperature

If the temperature inside of the vehicle rises too high, recording automatically stops to protect the device.

When this happens, the LED indicator blinks slowly in purple alongside the voice message "Recording is paused to protect the product from high temperature." When the temperature goes down, recording resumes automatically.

- Reset

If a problem happens to AutoCapsule and an abnormal state persists for more than five minutes, unplug the power cable and completely switch off AutoCapsule before plugging it again.

+ File Management

Recorded files are saved in the Recordings folder on the memory card.

The file is named as 'yyyymmdd_hhmmss_file type_recording mode_front/rear.MP4' based on the specific time it was recorded.

Recording mode and status	Name of file
Driving mode recording (Normal)	yyyymmdd-hhmmss_NOR_D_F / yyyymmdd-hhmmss__NOR_D_R
Driving mode recording (Event)	yyyymmdd-hhmmss_EVT_D_F / yyyymmdd-hhmmss_EVT_D_R
Parking mode recording (Motion)	yyyymmdd-hhmmss_MOT_P_F / yyyymmdd-hhmmss_MOT_P_R
Parking mode recording (Event)	yyyymmdd-hhmmss_EVT_P_F / yyyymmdd-hhmmss_EVT_P_R
Parking mode recording (Non-stop recording)	yyyymmdd-hhmmss_NOR_P_F / yyyymmdd-hhmmss_NOR_P_R

* NOR : Normal file / EVT : Event file / MOT : Motion file

* D : Driving mode recording / P : Parking mode recording

* F : Front / R : Rear

* EX) Normal front file created on Nov 8, 2017 at 9:56:09 a.m. while driving ► 20171108-095609_NOR_D_F.mp4

Event rear file created on Nov 9, 2017 at 11:07:35 p.m. while parked ► 20171109-230735_EVT_P_R.mp4

Motion front file created on Dec 23, 2017 at 4:32:50 p.m. when parked ► 20171223-163250_MOT_P_F.mp4

+ Wi-Fi Connection to Smart Manager

Recorded videos can be quickly and easily checked through a smart phone application Smart Manager via built-in Wi-Fi. Videos can be checked in real time through Live View, and various options can be set easily. ¹⁾

- Turning AutoCapsule Wi-Fi on and off



When the side button is pressed twice, the indicator LED rotates in blue alongside the voice message announcing the start of Wi-Fi connection. When the Wi-Fi connection is established, the indicator LED stays on solidly. Wi-Fi can be turned off by ending Smart Manager or pressing the button twice.

- Connecting from smart phone for the first time

When Smart Manager is used for the first time, you need to follow a network registration procedure.

- * Android : Settings → Wireless and network → Turn on Wi-Fi → Select 'COWON-AQ2' from Wi-Fi networks → Enter password
- * iPhone, iPad : Settings → Wi-Fi On → Choose a Network → Select 'COWON-AQ2' → Enter password

Initial network name : COWON-AQ2

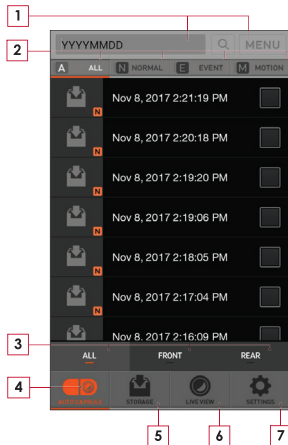
Initial password : 1234567890 ²⁾

¹⁾ Recording quality may fall during Wi-Fi operation.

²⁾ Change the password to protect private information and use the AutoCapsule securely. The password can be changed in the Settings menu of the PC Manager.

+ Smart Manager

- Android smart device users can download the application from Google Play Store.
- iPhone and iPad users can download the application from Apple App Store
- It can also be downloaded easily by entering keywords such as COWON, AutoCapsule, Smart Manager, and AQ2 in the search field.



1	Enter yyyyymmdd with smart phone keyboard to search files Ex) Search files recorded on Nov 8, 2017 → Enter 20171108
2	Files of selected types are shown on the list. ALL : All / NORMAL : Normal / EVENT : Event / MOTION : Motion
3	ALL : Files recorded from both the front and rear view cameras are displayed in the list. FRONT : Files recorded from the front view camera are displayed in the list. REAR : Files recorded from the rear view camera are displayed in the list.
4	Files recorded on the AutoCapsule are shown on the list.
5	With Smart Manager, downloaded files can be played or ¹⁾ can be directly uploaded to YouTube, etc. through the Share. ²⁾
6	Check video being recorded in real time with Live View.
7	Users can set their preferences and check AutoCapsule information.

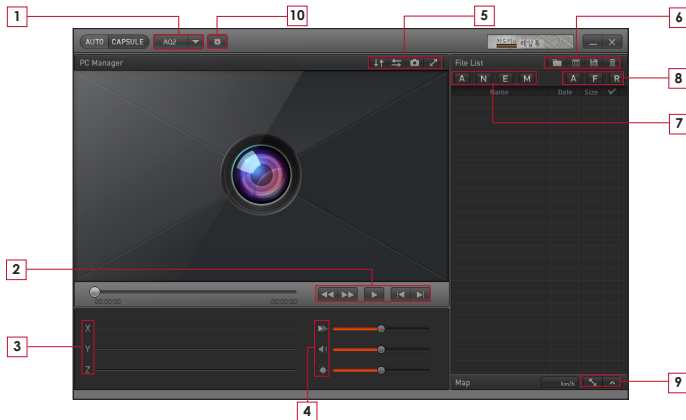
* On iPhone and iPad, an additional Log-in/Log-out tab exists at the bottom. Press the Log-in tab for normal connection.

¹⁾ If files cannot be played back with the default video player, download and install a professional media player from Google Play or App Store. (Ex: MX player, etc.) The quality of file playback may depend on the specification of smart device.

²⁾ Share menu is supported by Android Smart Manager only.













+ PC Manager















The PC Manager can be downloaded from the bundle CD.



* In order to change the setting of front or rear view camera with PC Manager, connect the memory card from the camera to a PC, select the Front or Rear View Camera Setting tab on the PC Manager setting screen, and then save the following settings. Smart Manager allows you to immediately apply settings for the front/rear view camera.

+ PC Manager

1		Selects your AQ2.
		Rewinds/fast forwards the video during playback.
		Plays a selected file.
2		Plays the previous/next file.
		Displays intensity of impact on the X,Y,Z axis of G sensor.
3		Sets playback speed.
		Adjusts the volume.
		Adjust the brightness of the video during playback.
4		Rotates video footage upside down during playback.
		Flips the video currently playing on the screen.
		Captures the screen during playback.
		Switches into a full screen mode.

5		Finds a folder of recorded video files.
		Sorts files recorded on the selected date.
		Saves selected video files on a PC.
6		Deletes selected video files.
		Displays all recorded files on the list.
		Displays normal files only on the list.
7		Displays event files only on the list.
		Displays motion files only on the list.
		Displays videos from the front and rear view cameras in the list.
8		Displays videos from the front view cameras in the list.
		Displays videos from the rear view cameras in the list.
9		Shows the map in full size if a GPS file exists.
		Shows the map if a GPS file exists.
10		Users can set their preferences.

+ Front and Rear View Recording Synchronization

In the ordinary recording status, the front and rear view cameras are synchronized by the front view camera setting. If one of the cameras stops recording due to high temperature protection or safe removal of memory card, then the other camera autonomously runs by its own setting.

- Items like file name, recording file save cycle, parking voltage, and termination voltage are determined by the front view camera setting.
- Wi-Fi On/Off, Remote Monitoring On/Off, and Sound Recording by Button On/Off are always applied to both the front and rear View cameras.

+ Auto Shutdown Timer

After parking recording commences, the device operates for a pre-set time, after which the power is turned off automatically. Auto Shutdown Timer can be set through the Smart Manager and the PC Manager.

- * Go to Settings → Recording → Auto Shutdown Timer

+ Setting Parking Mode Voltage

Parking mode voltage can be set through the Smart Manager and the PC Manager.

- * Go to Settings → Recording → Set voltage
- Set the voltage value lower if the device goes into parking mode recording while driving.
- Set the voltage value higher if the device does not automatically go into parking mode recording while parked.
- If the output voltage of vehicle battery is higher or lower than the parking voltage setting range, then go to Settings → Record Setting → Parking Recording and turn off Use Parking Voltage. Afterward, the device detects the movement of the vehicle to start the parking recording.

+ Setting Auto Shutdown Voltage

When battery voltage falls below the pre-set voltage value after going into parking mode recording, power is turned off automatically to protect the battery. Shutdown voltage value can be set through Smart Manager and PC Manager.

* Go to Settings → Recording → Setting Voltage

- When standby operation time becomes shorter in parking mode recording, set the range of auto shutdown voltage lower.
- The lower the pre-set voltage value, the longer the standby time in parking mode recording, and the higher the pre-set voltage value, the shorter the standby time in parking mode recording.
- If voltage falls below the pre-set auto shutdown voltage value during operation while auto shutdown timer is set, power is turned off regardless of the auto shutdown timer.
- If you do not wish to use the auto termination voltage setting feature, then go to Settings → Record Setting → Parking Recording and turn off Termination Voltage.
- If the auto termination voltage setting feature is not in use, then the vehicle battery may be discharged. This may result in a faulty ignition start or engine stop. It is recommended to only use this feature when absolutely necessary.

* Parking mode recording, auto parking mode voltage, and auto shutdown voltage settings are accessible only during uninterruptible power connection.

* The lower the pre-set auto shutdown voltage value, the greater the risk of battery discharge; the higher the pre-set auto shutdown voltage value, the more effective it is for preventing battery discharge. Set the voltage value to suit your vehicle battery condition before use.

+ Non-stop Recording While Parked

Non-stop recording occurs while the car is parked, and the recorded files are stored as normal (NOR) files.

* Go to Settings → Recording → Parking Recording

+ File Deletion Setting

Deletion can be selected when recorded files exceed the available memory card storage space.

* Go to Settings → Recording → File Deletion Settings

Deletion method	Description	Note
In the order of time	The oldest file is deleted first, regardless of file type.	
Normal, event, motion	Deletes in accordance with storage space quota set for each file type.	50%, 30%, 20% 60%, 30%, 10% 70%, 20%, 10%
Normal + motion, event	Deletes in accordance with storage space quota set for normal + motion/event files.	70%, 30% 80%, 20%

+ Sensitivity of G Sensor

Sensitivity of the G sensor's detection of external impact when driving or parked can be adjusted.

* Go to Settings → Device → G Sensor Sensitivity

- X axis: to the right and left of the driving direction, measured from the center of the vehicle
- Y axis: to the front and back of the driving direction, measured from the center of the vehicle
- Z axis: Up and down, measured from the center of the vehicle

+ Motion Detection Sensitivity

Sensitivity of motion detection made by the device while parked can be adjusted. ¹⁾

* Go to Settings → Device → Motion Sensor

¹⁾ If light reflected by the LED indicator causes motion files to be created continuously during parking mode recording, go to Settings → Device settings → LED On During Parking Recording, OFF

+ Specifications

Item	Specification	Note
Lens	Full HD wide angle lens, 5 Glass structure	
Image sensor	1/2.7" Full HD CMOS sensor, 1920x1080 pixel	
Recording resolution	1 CH - Front : Full HD (1920 X 1080p)	
	2 CH - Front : Full HD (1920 X 1080p) Rear : Full HD (1920 X 1080p)	
Recording angle	Diagonal angles of 150°	
Video encoding	H.264 (MPEG-4 AVC)	
Recording file type	Normal file(NOR), Event file(EVT), Motion file(MOT) ¹⁾	
Wireless connection	Built-in Wi-Fi	Wireless connection with smart devices
Audio recording	Microphone	
Battery voltage management	Built-in voltage detection circuit	Auto shutdown voltage setting, auto shutdown timer, Implement auto parking mode recording ²⁾
Software	Smart Manager (supported by Android and iOS)	Live View, Download, Playback, Share (Android), Wireless firmware upgrade, Wireless format, Settings, etc.
	PC Manager (for Windows PC)	File playback, Screen capture, Settings, Map display ³⁾
Dimension and weight	26mm(H) x 32mm(D) x 100mm(W) / 59g	
Storage memory	Support up to 128GB	
Operating Temperature	-20℃~60℃	
Power	DC 12V~24V	
Others	G sensor, Speaker, LED Status Indicator, External GPS Terminal	

¹⁾ Motion file is available in uninterruptible power connection mode only.

²⁾ Available only when connected with uninterruptible power cable.

³⁾ Only files recorded with external GPS receiver can be viewed.

